

16° 22' W., at night, SE. breeze, stormy. 25th, 53° 24' N., 25° 36' W., a. m., strong WSW. breeze, heavy rain squalls; noon, moderate westerly gale, cloudy; p. m., stormy N. breeze. 26th, 50° 40' N., 32° 35' W., fresh W. to N. gale; 51° 58' N., 32° 50' W., a. m., hard northerly gale and tremendous sea. 27th, 51° 50' N., 25° 26' W., strong N. breeze, squally. 29th, 49° 31' N., 42° 40' W., SE. to N. strong breeze, rainy. 30th, 46° 57' N., 50° 16' W., S. rain and fog.

Abstracts from log of schooner "San Diego," beached at Wolf Island, Behring Sea, during winter; observations were commenced October 20th, 1877, and continued until April 30th, 1878, at 7 a. m., noon, and 6 p. m. *October* 20th to 31st, mean daily barometer, lowest, 28.70; highest, 29.85; mean daily temperature, lowest, 28°; highest, 44°; N'y hail squalls, 23d and 24th; NE. gales, 20th and 21st. *November*, m. d. bar., lowest, 28.20; highest, 29.60; m. d. temp., lowest, 22°; highest, 40°; snow on 9 days; rain, 4 days; hail, 1 day; gales on 10 days. *December*, m. d. bar., lowest, 28.20; highest, 29.80; minimum reported temp., 2°; maximum daily mean temp., 37°; snow, 9 days; hail, 1 day; gales on 11 days. *January*, m. d. bar., lowest, 28.10; highest, 29.50; min. temp., 2°; max., 42°; snow, 5 days; rain, 1 day; gales, 5 days. *February*, m. d. bar., lowest, 28.40; highest, 29.50; min. temp., -8°; max., 49°; snow, 4 days; gales, 4 days. *March*, m. d. bar., lowest, 28.50; highest, 29.30; min. temp., 4°; max., 56°; snow, 4 days; gale, 1 day. *April*, m. d. bar., lowest, 28.40; highest, 29.90; min. temp., 18°; max., 52°; snow and rain, 13 days; gales, 7 days.

Monthly reports from York Factory, Hudson's Bay, Canada, contain the following items: *March*, mean barometer, 29.79; max., 30.66; min., 29.50; mean temp., 8° 9'; max., 30°; min., -18° 5'; snow-fall, 17.9 inches in 22 days; the Aurora borealis observed on 12 days, generally very faint; depth of ice in river on the 31st, 5 ft. 8 in. *April*, mean bar., 29.97; max., 30.35; min., 29.01; mean temp., 27° 3'; max., 53° 5'; min., 6° 0'; total rain-fall or melted snow, 0.41 in.; rain on 3 days; snow on 10 days; the Aurora borealis observed on 7 days, generally faint. *May*, mean bar., 29.92; max., 30.33; min., 29.51; mean temp., 32° 8'; max., 75°; min., 10° 5'; total rain and melted snow, 2.21; rain on 9 days; snow on 6 days; aurora on 3 days; ice in river broke up from the 14th to 16th; 21st, woods on fire. *Zoological*.—*March* 17th, snow-birds; April 22d, geese; 23d, ducks; 25th, snipe; 27th, robins.

Ice at Sea.—Captain Dollard, of schooner "Stag Hound," reports "June 15th north of St. Paul's Island, Behring sea, spoke schooner "Legal Tender," bound for Point Hope, Arctic ocean, which vessel had fallen in with ice, and, finding it impossible to proceed further, was bound across Behring sea to try the Asiatic shore. Captain Dollard also reports "July 3d as far north as King's Island, Behring Straits, found ice very heavy; could not proceed further north."

Ocean current.—The Maritime Sub-delegate of the bay of Coronel, Chili, reports "June 22d, at low tide, a strong current was noted to the northwest of Point Puccho, coast of Chili, which reached three miles an hour in the direction of the bay of Coronel. This extraordinary current was purely accidental, and had its origin in the continued winds from the 4th quadrant, which blew during the month, and in the great discharge from the river Bio Bio, in consequence of heavy rains."

TEMPERATURE OF THE AIR.

The isothermal lines on chart No. II illustrate the general distribution of the temperature of the air, during the month. By a reference to the table, on the left side of same chart, it will be seen that the average for the month has been above the mean in all sections, except in lower Canada, New England and on the Pacific coast; the average for the Gulf States is not obtainable, owing to the monthly reports from the Lower Mississippi valley not having come to hand, but the means of stations, situated elsewhere, show it to be about 2° above normal. Since the chart was printed New Orleans has come to hand, mean temperature, 83° 5' barometer, 29.96.

Maximum and Minimum Temperatures, respectively.—*Maine*—At Orono, 44° and 82°; Cornish, 53, 86. *New Hampshire*—Mt. Washington, 30, 60; Dunbarton, 42, 90. *Vermont*—Woodstock, 41, 87; West Charlotte, 55, 94. *Massachusetts*—Rowe, 42, 80; Somerset, 49, 91. *Rhode Island*—Fort Adams, 58, 80; Newport, 54, 81. *Connecticut*—New London, 52, 84; Southington, 56, 83; New Haven, 52, 85. *New York*—Plattsburg Barracks, 47, 83; Waterburg, 48, 90; Willett's Point, 62, 93; Rochester, 52, 87; Albany, 49, 85; New York city, 59, 88. *New Jersey*—Freehold, 53, 86; Jersey City, 63, 95; Vineland, 57, 92. *Pennsylvania*—Franklin, 40, 84; Tioga, 47, 90; Pittsburgh, 52, 94; Philadelphia, 58, 89. *Delaware*—Dover, 52, 90. *Maryland*—Woodstock, 52, 91; Owing's Mills, 54, 86; New Market, 64, 92. *District of Columbia*—Washington, 57, 93. *Virginia*—Wytheville, 54, 88; Capeville, 70, 98; Cape Henry, 66, 99. *West Virginia*—Morgantown, 56, 90. *North Carolina*—Highlands, 60, 85; Wilmington, 62, 99; Weldon, 64, 100. *South Carolina*—Aiken, 68, 98; Charleston, 69, 97. *Georgia*—Augusta, 69, 105; Forsyth, 75, 100; Tybee Island, 72, 101. *Florida*—Daytona, 63, 97; Fort Barrancas, 68, 103; Key West, 76, 94. *Alabama*—Montgomery, 70, 97; Cress Spring, 70, 98. *Mississippi*—Fayette, 68, 94; Brookhaven, 72, 101. *Louisiana*—New Orleans, 73, 94. *Texas*—Fort Concho, 50, 99; Fort McKavett, 55, 98; Boerne, 65, 104; Terril, 72, 105; Melissa, 74, 107. *Ohio*—Westerville, 46, 88; Cleveland, 52, 89; Cincinnati, 60, 94; Jacksonburg, 62, 96. *Kentucky*—Louisville, 59, 96; Danville, 60, 94. *Tennessee*—Nashville, 63, 97; Austin, 66, 96; Cleveland, 66, 100. *Arkansas*—Mt. Ida, 66, 96; Judsonia, 70, 95. *Michigan*—Grand Haven, 46, 83; Detroit, 45, 90; Alpena, 50, 92. *Indiana*—Indianapolis, 53, 92; New Harmony, 55, 97; Laconia, 58, 99. *Illinois*—Rockford, 53, 87; Chicago, 57, 91; Louisville, 60, 100; Peoria, 58,

97. *Missouri*—Lebanon, 54, 97; St. Louis, 60, 96; Corning, 58, 98; Frankford, 65, 99. *Kansas*—Fort Hays, 47, 102; Leavenworth, 58, 99; Baxter Springs, 70, 100; Fort Wallace, 61, 104. *Wisconsin*—Neillsville, 42, 91; Bloomfield, 53, 84; Manitowoc, 60, 94. *Iowa*—Nora Springs, 50, 94; Keokuk, 61, 97; Vail, 52, 95; Tabor, 56, 100. *Nebraska*—Camp Sheridan, 42, 99; Fort Hartsuff, 43, 100; North Platte, 54, 103; Fort McPherson, 50, 104. *Indian Territory*—Fort Sill, 51, 98; Fort Gibson, 58, 99. *Minnesota*—Duluth, 49, 92; St. Paul, 52, 94; Breckenridge, 41, 90. *Dakota*—Fort Pembina, 36, 89; Fort Rice, 43, 100. Yankton, 48, 97; Olivet, 45, 103. *Colorado*—Summit, 39, 72; Pike's Peak, 29, 62; Denver, 54, 105. *Wyoming*—Fort Sanders, 43, 86; Cheyenne, 45, 91; Fort Fred Steele, 49, 96; Fort Fetterman, 43, 103. *Utah*—Coalville, 51, 96; Salt Lake City, 60, 97. *Nevada*—Pioche, 54, 94; Winnemucca, 44, 100; Camp McDermit, 52, 102. *Arizona*—Yuma, 69, 114. *California*—Santa Cruz, 47, 73; Visalia, 49, 106; Sacramento, 53, 100; San Francisco, 52, 73; San Diego, 55, 80; Red Bluff, 57, 110. *Oregon*—Roseburg, 44, 88; Portland, 47, 87. *New Mexico*—Fort Union, 45, 89; Fort Wingate, 48, 92; Fort Craig, 60, 105; La Mesilla, 64, 107. *Idaho*—Boise City, 53, 98. *Montana*—Virginia City, 50, 90.

Ranges of Temperature.—The *monthly ranges* will appear, from examination of the minima and maxima temperatures just given. Greatest *daily ranges* vary in New England from 16° least on Mt. Washington to 25° at Boston; Middle Atlantic States, 19° at Cape May to 26° at Fort Whipple, Va.; South Atlantic States, 15° at Cape Hatteras to 28° at Augusta; East Gulf States, 16° at Key West to 23° at Jacksonville; West Gulf States, 17° at Galveston; Ohio valley and Tennessee, 21° at Cairo and Cincinnati to 29° at Pittsburgh; Lower Lake region, 22° at Sandusky to 28° at Rochester; Upper Lake region, 21° at Chicago to 28° at Marquette; Upper Mississippi valley, 21° at Davenport to 27° at Dubuque and St. Paul; Lower Missouri valley, 27° at Omaha to 39° at Yankton, and 42° at North Platte; Minnesota and Dakota, 37° Bismarck to 41° at Pembina; Colorado, 22° on Pike's Peak to 45° at Denver; Utah and Nevada, 32° at Salt Lake City and Pioche to 46° at Winnemucca; California, 17° at San Francisco and San Diego to 41° at Visalia; Oregon, 35° at Roseburg; Idaho, 38° at Boise City; Montana, 36° at Virginia City.

Frost occurred as follows: Pike's Peak, every day; Bismarck, Dak., 15th, 16th, hoar frost on bottom lands; Pembina, Dak., 25th; Grand Haven, Mich., 26th; Mt. Washington, 23rd and 26th; New London, Conn., 24th; Cresco, Iowa, 24th; Fall River, Mass., 23rd; Rowe, Mass., 5th; Grand Rapids, Mich., 26th; Kensico, N. Y., 24th, on low ground; Chambersburg, Pa., 26th; Lunenburg, Vt., 26th.

Ice is reported to have formed at Pike's Peak, on the 11th, $\frac{1}{2}$ inch.

PRECIPITATION.

On chart No. III is illustrated the general distribution of the rain-fall for the month. On the left side of the same chart is a table giving the average precipitation for August by districts, which shows a general deficiency over the interior, but a decided excess in the Atlantic States. The monthly records from several stations in the Gulf States are not yet to hand, but those received, except New Orleans, show a large excess.

Special Heavy Rains.—1st, Jersey City, N. J., 3.08; Flushing, N. Y., 3.65 in. in 3½ hours. 2nd, Albany, N. Y., 1.25 in. in 10 minutes. 3rd, Fort Barrancas, Fla., 3.75 in. 4th, Mendon, Mass., 5.90 in.; Colebrook, Conn., 6.67 in. in 6 hours. 6th, Newark, N. J., 3.04 in.; South Orange, N. J., 3.47 in.; Waltham, Mass., 2.50 in. in 90 minutes. 8th and 9th, Boston, 4.04 in.; Watertown, Mass., 3.30 in.; Contoocookville, N. H., 3.30 in. 10th, St. Louis, 2.57 in. in 88 minutes. 12th, Weldon, N. C., 12th, 13th, 4.83 in.; Portsmouth, N. C., 12th to 14th, 5.47 in.; Fort Barrancas, Fla., 12th, 13th, 3.15 in. 14th, Charleston, 13th, 14th, 7.81 in.; Fort Barrancas, Fla., 3.75 in. 16th, Fort Monroe, Va., 4.58 in.; Vineland, N. J., 16th, 17th, 5.40 in. 17th, Mt. Sterling, Ill., 4.00 in.; Mt. Desert, Me., 17th, 18th, 3.15 in. 18th, Wood's Holl, Mass., 5.11 in. 19th, Elmira, Ill., 3.29 in. in 1 hour and 55 minutes. 20th, Mt. Sterling, Ill., 2.50 in. 21st, Frechold, N. J., 2.65 in.; Savannah, Ga., 1.75 in. in 60 minutes; Springfield, Mo., 3.30 in. 27th, Dodge City, Kan., 2.01 in. in 73 minutes. 29th, Greene Spring Ala., 29th, 30th, 3.10 in.; Mt. Solon, Va., 2.40 in. in 6½ hours; Fort Barrancas, Fla., 9.75 in. 30th, Cape Lookout, 2.05 in., in 1 hour; Spring Garden, Tenn., 4.70 in.

Largest Monthly Rain-falls.—At Fort Barrancas, Fla., 30.73 inches; Cape Lookout, N. C., 14.30 in.; Portsmouth, N. C., 11.76 in.; Mt. Washington, N. H., 11.35 in.; Gulf Hammock, Fla., 11.15 in.; Colebrook, Conn., 11.07 in.; Charleston, S. C., 10.73 in.; Auburn, N. H., 10.14 in.; Cape Hatteras, N. C., 10.07 in.; Norfolk, Va. and Mobile, Ala., 9.95 in.; Weldon, N. C., 9.15 in.; Washington, D. C., 8.89 in.; Mendon, Mass., 8.50 in.; Waltham, Mass., 8.40 in.; Vineland, N. J., 8.46 in.; Green Spring, Ala., 8.32 in.; Willett's Point, N. Y., 8.34 in.; Newark, N. J., 8.06 in.

Smallest Monthly Rain-falls.—At Fort San Jose, Alcatraz Island, San Francisco, Los Angeles, Sacramento, Visalia, Salinas City, Fresno and Healdsburg, Cal. and Fort Concho, Tex., none; San Diego, Red Bluff and Twin Oaks, Cal., trace; Campo, Cal., 0.01 in.; Santa Cruz, Cal., 0.02 in.; San Buenaventura, Cal., 0.03 in.; Coleman, Tex., 0.06 in.; Tarentum, Pa., 0.10 in.; Umatilla, Or., 0.15 in.; Concho, Tex., 0.23 in., Pierce City, Mo., 0.30 in.; Olympia, Wash. Ty., 0.32 in.; Empire City, Kan., 0.35 in.; Corning, Mo., 0.40 in.; Roseburg, Or., 0.46 in.; Portland, Or., Boise City, Idaho and Winnemucca, Nev., 0.50 in.; La Mesilla, N. M., 0.61 in.

Floods.—9th., Black river at Watertown, N. Y., rose five feet, during rain-storm; bridges and buildings swept away along the river and small streams; highways and railroads in Jefferson Co., badly damaged; in eastern Massachusetts wash-outs occurred on several railroads. 10th., In northern New York, western and southern Vermont and western Massachusetts, all streams much swollen; tributaries of the Hudson,